

DOW, LOHNES & ALBERTSON, PLLC  
ATTORNEYS AT LAW

WASHINGTON, D.C.

1200 NEW HAMPSHIRE AVENUE, N.W. • SUITE 800 • WASHINGTON, D.C. 20036-6802  
TELEPHONE 202-776-2000 • FACSIMILE 202-776-2222

  
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Federal Communications Commission  
Office of Secretary

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April 22, 2003

**VIA HAND DELIVERY**

The Honorable Kathleen Q. Abernathy  
Federal Communications Commission  
445 12th Street, SW, Room 8-B115  
Washington, DC 20554

Re: Follow-Up to Recent Office Visit  
Omnibus Media Ownership Proceeding  
(MB Docket No. 02-277; MM Docket Nos. 01-235, 96-197, 01-317, and 00-244)

Dear Commissioner Abernathy:

On behalf of Media General, Inc. ("Media General"), we are submitting this letter to follow up on the March 24th meeting that George Mahoney of Media General and we had with you and your staff. In that meeting, Media General expressed its continuing belief that the record that has been compiled in the above-referenced dockets supports only one course of action -- the complete elimination of the newspaperbroadcast cross-ownership rule without a replacement rule that in any manner restricts cross-ownership of newspapers and broadcast facilities. In our discussion, you indicated that you understood from staff that several items in the record might not fully support that position, and you suggested that, if Media General felt differently, it should supplement the record. This letter is being filed in response to that suggestion and to supplement the record on elimination of the newspaperbroadcast cross-ownership rule.<sup>1</sup>

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<sup>1</sup> In the above-referenced dockets, Media General has filed extensive factual materials based on its experience in operating combined newspaper and television properties in six Designated Market Areas ("DMAs"), which show, among other things, the diverse array of choices available in those markets, and include studies it has commissioned demonstrating why repeal of the newspaperbroadcast rule will not have an adverse effect on competition and will have a beneficial effect on the availability of diverse news and information. These Media General filings also address the issues discussed below and further demonstrate why the rule must be repealed in its entirety. See Reply Comments of Media General, Inc., in MB Docket No. 02-277 and MM Docket Nos. 01-235, 01-317, and 00-244, filed Feb. 3, 2003 ("*Media General 2003 Reply Comments*"); Comments of Media General, Inc., in MB Docket No. 02-277 and MM Docket Nos. 01-235, 01-317, and 00-244, filed January 2, 2003 ("*Media General 2003 Initial Comments*"); Reply Comments of Media General, Inc., in MM Docket Nos. 01-235 and 96-197, filed February 15, 2002 ("*Media General 2002 Reply Comments*"); and Comments of Media

To our knowledge, the studies or research that have been mentioned **as** possibly supporting some remaining vestige of the rule are as follows: “Consumer Substitution Among Media,” by Joel Waldfofel, Federal Communications Commission Media Ownership Working Group, 2002-3, September 2002 (“**Waldfofel Study**”); “Consumer Survey on Media Usage,” Nielsen Media Research, Federal Communications Commission Media Ownership Working Group, 2002-8, September 2002 (“**Nielsen Survey**”); and “Surveying the Digital Future -- Year Three,” UCLA Center for Communications Policy, February 2003 (“**UCLA Internet Report**”).

Since our meeting, we have again reviewed these materials and also sought input on the **Waldfofel Study** from two leading economists, Jerry A. Hausman of the Massachusetts Institute of Technology and James N. Rosse, formerly a professor and Provost at Stanford University. Based on this review and the analyses provided by Professors Rosse and Hausman, we remain convinced that these materials do not support retention of the newspaperbroadcast cross-ownership rule. In a number of important ways, the studies rather support its complete repeal.

Professor Hausman, one of the most eminent economists in the United States, notes that no economic study provides a basis to support retention of the current cross-ownership rule or any similar future rule given other federal laws to protect consumers. Professor Hausman further observes that these rules are not benign, but have the potential to harm consumers. Professor Hausman is particularly skeptical of the forms and uses of a “diversity index” frequently mentioned in the trade press. “[A]ny attempt to create a ‘diversity index’ based on market structure measures would be arbitrary and not have a basis in economic theory. **An** arbitrary ‘diversity index’ would not predict either the economic performance or amount of diversity that would follow after the merger of two firms.”<sup>2</sup>

Remarkably, neither Professor Waldfofel nor those who prepared the other studies discussed herein, claim that any of these studies provides an empirical basis necessary for the retention of the newspaper cross-ownership rule, or any similar rule. To the extent such inferences about the necessity of cross-ownership restrictions have been drawn, they are not by those most familiar with the strengths and limitations of the studies: their authors.

1. **Waldfofel Study.**

In his study, which was commissioned by the FCC, Professor Joel Waldfofel uses correlation and regression techniques to study patterns of media supply and media usage by consumers. When he finds measures from two media co-varying negatively, he describes the particular media as “substitutes” for one another. Although he places less emphasis on it, he recognizes positive covariance between two media **as** “complementary.” For Media General, the findings of interest in Professor Waldfofel’s study are that overall uses of broadcast television and daily newspapers have a complementary relationship but a substitute relationship when

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General, Inc., in MM Docket Nos. 01-135 and 96-197, filed Dec. 3, 2001 (“**Media General 2001 Initial Comments**”).

<sup>2</sup> Statement of Jerry A. Hausman, attached as Exhibit 2, at ¶ 12.

comparing the “gap” or differences between broadcast television news and broadcast entertainment usage to daily newspaper usage.’

Professor Waldfogel used *two* sets of data to study consumers’ media usage patterns and develop his findings. The first body of data consisted of combined cross-section and time-series data from several published services. It included data on media usage by consumers, numbers of media, and demographic information from the 140 DMAs in the nation for which Metropolitan Statistical Areas and Arbitron metro areas can be linked to the DMAs. Professor Waldfogel used annual data for various time periods from 1993 to 2000, depending on the availability of the information. The media that he surveyed included television, daily newspapers, weekly newspapers, radio, cable television, and the Internet.

Professor Waldfogel’s second body of data was drawn from Scarborough Research and consisted of survey responses from nearly 180,000 individuals collected in the latter half of 1999 and first half of 2000. The respondents reported on their usage of newspapers, television, cable and satellite, radio, and the Internet. Demographic data on the respondents were also available.

*a. Professor Rosse*

In the critique attached to this letter as Exhibit 1, Professor Rosse provides a very detailed analysis of the problems with Professor Waldfogel’s use of both sets of data. Professor Rosse concludes that the analysis of the first data set, which is set forth in Part I of the Waldfogel Study, produced no “significant results.”<sup>4</sup> Rather, as Professor Rose notes,

In the end, the most optimistic statement he can make is that “we conclude our analysis of the aggregate data with the observation that there is some evidence of consumer substitution across the media.” From this part of the study, he reports no results whatsoever regarding the specific relationship between daily newspapers and broadcast television. For these two media, there is no report of measures based on his concept of “substituting” much less the actual definition of substitution. Thus, this part of the study cannot inform the FCC’s evaluation of the newspaper cross-ownership rule.’

Professor Rosse next analyzes Professor Waldfogel’s use of the second set of data and concludes that the data simply do not permit any inference of substitutability or complementarity among media products, but rather the results in Part II of the Waldfogel Study merely depict

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<sup>3</sup> *Waldfogel Study* at 3, 33-34, and Tables 10-14 at 73-76.

<sup>4</sup> Rosse at 4.

<sup>5</sup> Rosse at 4 (footnotes omitted).

consumer preferences among media, “no more and no less.”<sup>6</sup> Professor Rosse explains this conclusion as follows:

The only way that either complementarity or substitutability could be established is if there were a change in the availability and/or quality of one product that had a resulting effect on usage of the other. Since this data set is a single cross-section and in the absence of a full-blown structural model, it simply does not permit that kind of experiment.’

As Professor Rosse notes, Professor Waldfogel recognized this shortcoming himself when he stated, “‘One cannot draw firm inferences about substitutability from the data directly without additional assumptions.’”<sup>8</sup>

Professor Rosse also takes great pains to explain why Professor Waldfogel’s construction of a “news-entertainment gap” from which he draws his supposedly strong evidence of **TV** news and daily newspaper substitutability was flawed. The repeatedly “negative interaction” of the relevant variables, which Professor Waldfogel’s study produces and which result in his conclusion of substitutability, simply follows from his taking what is generally a fairly large number and always subtracting it from a relatively small number, consistently ensuring that the constructed variable takes **on** a negative value.’ In sum, Professor Rosse notes:

Previously, we established the fact that Professor Waldfogel’s conclusion that newspapers serve as substitutes for news is based on an incomplete experiment that makes the inference of substitutability unjustified. Now it is clear that it is also based on . . . seriously flawed and quite meaningless empirical results . . . . Thus, this part of the study cannot inform the FCC’s evaluation of the newspaper cross-ownership rule. Indeed, there is a significant risk that this faulty result could misinform the FCC’s evaluation.”

As Professor Rosse states in the final section of his critique, in the 1960s and 1970s he supported adoption of the newspaper broadcast cross-ownership rule and submitted an empirical study supporting that result to the Commission in 1970.<sup>11</sup> Since then, however, he has observed drastic changes in the media marketplace, changes which he chronicles at length. He also notes

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<sup>6</sup> Rosse at 5.

<sup>7</sup> Rosse at 5 (emphasis in original).

<sup>8</sup> *Id.*

<sup>9</sup> Rosse at 6.

<sup>10</sup> Rosse at 6 (footnote omitted).

<sup>11</sup> Rosse at 8 n. 14, *citing* “Economic Issues in the Joint Ownership of Newspaper and Television Media,” by James N. Rosse, Bruce M. Owen, and David L. Grey, May 1970.

that improvements in technology also now make the melding of newspaper and broadcast journalism much more successful.<sup>12</sup> “What all this means is that repealing the cross-ownership rule cannot help but be successful. There is ample competition from close substitutes to ensure that monopolization does not take place in the marketplace of ideas or in the related economic markets. . . .”<sup>13</sup>

On the subject of the *Waldfoegel Study*, in particular, however, Professor Rosse leaves us with the following conclusion:

The empirical work in Professor Waldfoegel’s paper has such flaws that the quantitative results do not provide a meaningful basis for governmental review of a regulation. Moreover, even if the empirical work had been flawless, the structure of that work would not reveal the underlying measures of substitution, complementarity, or any other useful information to evaluate the economic merit of a regulation. Consequently, the study does not inform the FCC’s evaluation of the newspaper cross-ownership rule and, if taken seriously, could even mislead that evaluation.<sup>14</sup>

In short, “certainly none of the results provides any support for continuation of the newspaper cross-ownership rule.”<sup>15</sup>

*b. Professor Hausman*

In his review, attached hereto as Exhibit 2, Professor Hausman similarly notes that Professor Waldfoegel’s claim that his regression results provide evidence of media substitution is incorrect:

**An** alternative interpretation of his results is that consumers prefer to obtain their news from a particular media. Some people may mainly rely on newspapers while other people rely on **TV** for their main source of news. This interpretation would result in a negative correlation between news use of one medium and news use of other media. Because of this alternative explanation, Prof. Waldfoegel’s regression results cannot be used to claim that different media serve as substitutes for one **another**.<sup>16</sup>

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<sup>12</sup> Rosse at 8.

<sup>13</sup> Rosse at 8-9.

<sup>14</sup> Rosse at 1.

<sup>15</sup> Rosse at 9.

<sup>16</sup> Hausman at ¶ 14 (footnote omitted).

As an additional problem, Professor Hausman notes that Professor Waldfogel's analysis "focuses entirely on statistical significance and not economic significance."<sup>17</sup> Given the large number of observations -- almost 180,000-- involved in Professor Waldfogel's individual-level regressions, Professor Hausman states that it is "not surprising" that all of the coefficients in a particular table upon which Professor Waldfogel relies to conclude, among other things, that newspapers serve as substitutes for TV news, are statistically different from zero at the 1% level." A statistically significant coefficient, however, is not necessarily economically significant, and an analysis of the economic significance of his coefficient leads to a very different conclusion.<sup>19</sup> "Prof. Waldfogel's failure to consider the economic significance of his results provides yet another reason his results cannot be relied upon."<sup>20</sup>

In his statement, Professor Hausman also makes two additional points, first about the effect that his earlier studies, which have already been lodged in this record, may have on the newspaperbroadcast cross-ownership rule and then about proposals to utilize a "diversity index." His first study, which was filed in one of the dockets related to this proceeding, found that consolidation in the radio industry has not led to higher prices for radio advertising and has resulted in increases in format diversity.<sup>21</sup> His second study, which focused on particular radio markets, similarly demonstrated that consolidation has not led to higher radio advertising prices, even where the top two firms controlled more than eighty percent of the market's revenue, and also showed a statistically significant relationship between increases in cable television advertising prices and the price of radio advertising. Lest the conclusions on market definition in these studies be read as implying any support for retention of the newspaperbroadcast cross-ownership rule, Professor Hausman states:

I am aware of no economic study, and certainly none that I have authored, that would conclude that any form of newspaperbroadcast cross-ownership rule administered by the FCC would be economically superior to relying instead on the antitrust reviews of the federal antitrust agencies. Indeed, to the extent that such a rule raises the costs of economically beneficial exchanges, and would prohibit many useful exchanges, such a newspaperbroadcast cross-ownership rule decreases both economic efficiency and consumer welfare.<sup>22</sup>

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<sup>17</sup> Hausman at ¶ 15.

<sup>18</sup> *Id.*, discussing Table 14, p. 16 of *Waldfogel Study*.

<sup>19</sup> Hausman at ¶ 15.

<sup>20</sup> *Id.*

<sup>21</sup> Hausman at ¶ 5.

<sup>22</sup> Hausman at ¶ 9.

Moreover, as he explains, the observation that advertising markets may include both newspaper and broadcast outlets is not a basis of support for retention of the newspaper/broadcast cross-ownership rule.” “While the government may have non-economic objectives to intervene in markets such as the newspaper/broadcast cross-ownership rule, such a rule cannot rely on economic studies, including mine, for support.”<sup>24</sup>

Finally, in his statement, Professor Hausman addresses the concept of a “diversity index.” He notes that “there is no economic theory that links diversity-related outcomes to underlying market structures.” Moreover, a “diversity index” would not “yield predictions of changes in diversity in a market, following a merger of two firms” because merged firms may find it profitable to increase the diversity of their content offerings, as Professor Hausman’s previous empirical research, on file with the Commission, has shown.<sup>25</sup> Given the likely possibility of such increases, Professor Hausman concludes, “[A]ny attempt to create a ‘diversity index’ based on market structure measures would be arbitrary and not have a basis in economic theory. An arbitrary ‘diversity index’ would not predict either the economic performance or amount of diversity that would follow after the merger of two firms.”<sup>26</sup>

## 2. Nielsen Survey

The *Nielsen Survey*, which was commissioned by the FCC and released by the agency last fall, reports the results of telephone interviews with 3,136 respondents whom Nielsen Media Research queried by telephone in late August and early September 2002 regarding their use of media.<sup>27</sup> The pool of consumers from which the respondents were drawn had recently completed television diaries in the February and May 2002 “sweeps” measurement periods.\* As a result, the group’s composition may have been slightly biased in favor of video watchers versus print readers. In addition, the average and median ages of the respondents were in their mid-forties,<sup>29</sup> so the pool of respondents likely was skewed against Internet usage.” Nonetheless, although the

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<sup>23</sup> Hausman at ¶ 10.

<sup>24</sup> *Id.* at ¶ 12.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* (emphasis added).

<sup>27</sup> *Nielsen Survey*, “Federal Communications Commission Telephone Recontact Study Weighted Data,” at 10 (attached to *Nielsen Survey*).

<sup>28</sup> *Id.* at 5.

<sup>29</sup> *Nielsen Survey* at Table 095.

<sup>30</sup> U.S. Department of Commerce, Economics and Statistics Administration, National Telecommunications and Information Administration, *A Nation Online: How Americans Are Expanding Their Use of the Internet* at 14 (February 2002). available at <http://www.esa.doc.gov/SOS/esa/USEconomy.htm> While this study shows that since December 1997, the age range of individuals more likely to be computer users has been rising, children and teenagers are still the most likely members of the overall population to be computer users.

results of the *Nielsen Survey* show that the American public, in many instances, continues to utilize more traditional news sources, such as television, newspaper, and radio, to obtain local and national news, it makes equally clear that many new entrants have captured the public's attention and have seriously eroded the dominant positions the more traditional media outlets held in 1975 when the newspaperbroadcast cross-ownership rule was adopted. The *Nielsen Survey* results are particularly telling in three ways: they demonstrate significant and growing reliance on the Internet for news and public affairs information; they show that cable and satellite subscription services have made measurable inroads in the use of over-the-air broadcast television; and they document the substantial use of weekly newspapers, further evidencing the growing erosion of the market occupied by daily newspapers.

**Internet Growth.** The *Nielsen Survey* demonstrates that consumers are making substantial use of the Internet in seeking information about current events and public affairs. When asked to name the list of sources they had used for *local* news and current affairs within the preceding seven days, 18.8 percent, or almost one-fifth, of the **group** responded that they had used the Internet without hearing any list of suggested **sources**.<sup>31</sup> When those who did not volunteer use **of** the Internet were presented with a follow-up question asking specifically if they had used it as a source of *local* news and public affairs in the preceding week, another 18.5 percent, or again almost one-fifth of those questioned, answered **affirmatively**.<sup>32</sup> When the same questions were asked about *national* news, 21.3 percent, or even more respondents, volunteered that they had used the Internet.<sup>33</sup> Of those that had not volunteered their usage of the Internet to obtain *national* news, some 12.7 percent admitted such use when specifically **queried**.<sup>34</sup>

When a slightly smaller group of respondents, those who admitted to obtaining any *local* news and current affairs in the last week, were then asked if they had used the Internet to **gain** access to local news and current affairs, **34.2** percent responded **affirmatively**.<sup>35</sup> When a similar group was asked the same question but about *national* news and public affairs, a consistent 32.2 percent responded **affirmatively**.<sup>36</sup>

In the overall pool of respondents, a large number admitted access to the Internet. Some 79.2 percent, or almost four-fifths, responded that they have access at home, work or **both**.<sup>37</sup> When respondents were asked to list which media they might utilize more or less in the future, the Internet, among all listed media, was the source that gained the highest percentage of "more

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<sup>31</sup> *Nielsen Survey*, Table 001.

<sup>32</sup> *Id.* at Table 002.

<sup>33</sup> *Id.* at Table 009.

<sup>34</sup> *Id.* at Table 010.

<sup>35</sup> *Id.* at Table 097.

<sup>36</sup> *Id.* at Table 098.

<sup>37</sup> *Id.* at Table 077.



often” responses -- 24.7 percent, further presaging the Internet as an even more dominant source of news.<sup>38</sup>

**Cable Television/Satellite-Delivered Video.** The *Nielsen Survey* results also showed significant growth in the role of subscription video services, like cable and satellite, in **the** daily lives of Americans. Of respondents who answered that television is one of their sources of *local* news and public affairs, 67 percent said that they watch such news on broadcast television channels, and 58 percent, or almost as many, said that they watch cable or satellite news channels.<sup>39</sup> When the same question was asked about sources of **national** news **and** current affairs, an even larger number, or 65.5 percent, listed cable or satellite news channels compared to 62.8 percent for broadcast news channels.<sup>40</sup>

A slightly smaller group of respondents, those who had said they get local or national news from various sources, were asked to name the source that they used most often. While almost one-third, or 33.1 percent, cited broadcast television channels, a surprisingly large number, or 23.3 percent, listed cable or satellite news channels, a figure that exactly matched the percentage of respondents who cited daily newspapers as the single source they use more often.<sup>41</sup>

Respondents who named a particular medium as the one that they used most often as their source for local or national news were also asked how likely, on a scale of one to five, they would be to use another suggested source if their preferred source were no longer available. A rating of “5” represented “much more likely” and “1” meant “no more likely.” When the numbers for those who rated a specified substitute as either a “5” or a “4” were tallied, cable or satellite news channels beat out daily newspapers among all respondents except those who had listed either weekly newspapers or magazines as their first preferred source.<sup>42</sup> When all respondents were queried about what source they would be more likely to use for national or local news and current affairs in the future, cable and satellite channels came in second behind the Internet.<sup>43</sup>

Finally, among the respondents, many more households paid to receive subscription video services than subscription print services. Specifically, when all respondents were asked to

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<sup>38</sup> *Id.* at Tables 070 through 076.

<sup>39</sup> *Id.* at Table 008. As the notations in many of the tables state, percentages of responses may sum to more than 100 percent due to multiple responses.

<sup>40</sup> *Id.* at Table 016. Again, multiple responses are responsible for causing the percentages to total more than 100 percent.

<sup>41</sup> *Id.* at Table 020.

<sup>42</sup> For those who listed broadcast as their number one source, *compare Nielsen Survey*, Table 021 with Table 024; for those preferring the Internet, *compare* Table 034 with Table 036; for those preferring radio, *compare* Table 058 with Table 061.

<sup>43</sup> *Id.* at Table 070 through Table 076.

list the subscription services, if any, that they received, 62 percent said cable, 20.5 percent said satellite, 49.8 percent said daily newspaper, and 24.0 percent said weekly newspaper.<sup>44</sup> When the cable and satellite percentages are summed, they show that 83.4 percent of the respondents subscribed to a paid video source.<sup>45</sup>

**Weekly Newspapers.** The results for the survey also show that weekly newspapers have a strong response rate vis-a-vis dailies in terms of readership. When the respondents who had not mentioned reading a weekly newspaper in the last seven days were specifically asked if they had done so, almost one-third, or 27.5 percent, responded affirmatively.<sup>46</sup> When those respondents who had said they obtained their news from a newspaper were asked to specify whether it was a daily, weekly, or both, 10.2 percent said weekly only and 27.3 percent, or again almost one-third, said they subscribe to both.<sup>47</sup>

The information on consumer preferences included in the *Nielsen Survey* shows that daily newspapers and television stations face serious competition for consumers' attention from newer media entrants. This competition, which is sufficiently significant to guarantee a robust market for news and information, shows that retention of the newspaper broadcast cross-ownership rule is unwarranted.

### 3. *UCLA Internet Report*

The *UCLA Internet Report*, the third in a series of annual reports by the UCLA Center for Communications Policy, released two months ago, leaves no doubt that the Internet has become an important media resource for consumers, and it demonstrates that consumers' use of this new medium has come at the expense of more traditional sources. For the third straight year, the *UCLA Internet Report* found that, overall, Internet access hovered around 70 percent, with 71.1 percent of Americans going online in 2002, compared to 72.3 percent in 2001, but up from 66.9 percent in 2000.<sup>48</sup> The number of hours online and access from home, in particular, continue to increase more dramatically, however, with the average weekly hours online rising to 11.1 in 2002, up from 9.8 hours in 2001 and 9.4 hours in 2000. The report also found that 59.4 percent

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<sup>44</sup> *Id.* at Table 079.

<sup>45</sup> *Id.*

<sup>46</sup> *Id.* at Table OS1.

<sup>47</sup> *Id.* at Table 007.

<sup>48</sup> *UCLA Internet Report* at 17. The study deemed the change in percentages between 2002 and 2001 to be statistically insignificant. *Id.* The *UCLA Internet Report* was based on telephone interviews with 2,000 households throughout the 50 states and the District of Columbia. *Id.* at 86.

of users have access at home, up from 46.9 in 2000, the first year of the project.<sup>49</sup> Of the five most popular Internet activities, “reading news” ranked third behind “e-mail and instant messaging” and “web surfing or browsing.”<sup>50</sup>

Perhaps most significant for the FCC’s evaluation of media ownership is the fact that growth of the Internet has come at the expense of the more traditional media, with Internet use increasingly supplanting time previously spent with other media. For example, the *UCLA Internet Report* made very clear that in 2002 all Internet users on average watched 11.2 hours of television per week or 4.8 hours less per week than non-users, compared to a difference of 4.5 hours per week in 2001.<sup>51</sup> The differences in television viewing become even more pronounced as Internet experience increases; very experienced users (six-plus years experience) reported viewing only 5.8 hours of television per week.<sup>52</sup> As the study concluded,

The trend throughout the three years of the UCLA Internet Project shows that Internet users may be “buying” their time to *go* online from hours previously spent viewing television . . . . Just as radio was the victim when television evolved in the early 1950s, now television is becoming the casualty of increasing Internet use.<sup>53</sup>

Not only has Internet use risen, but its importance to consumers has also increased. “In less than eight years as a publicly available communications tool, the Internet is viewed as an important source of information by the vast majority of people who use online technology.”<sup>54</sup> In 2002, 60.5 percent of all Internet users considered the Internet to be a very important or extremely important source of information.” Indeed, among the most experienced users (online at least six years), the Internet (73 percent) rated higher than books (67 percent), newspaper (57 percent), television (42 percent), and radio (19 percent) as an important source of information.<sup>56</sup>

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<sup>49</sup> *Id.* at 17. The study also showed that Internet access (overall) spans every age range, and in some age ranges, such as individuals 12-15 and 16-18 years of age, access approaches 100 percent. *Id.* at 21. Weekly time online also grows with users’ experience; very experienced users (six-plus years online) spend nearly three times as long online each week as do users with less than one year of experience. *Id.* at 22.

<sup>50</sup> *Id.* at 18.

<sup>51</sup> *Id.* at 33.

<sup>52</sup> *Id.* The study also noted that Internet users report lower levels of group television viewing, as a family activity, than do non-users, *id.* at 64, and that children in households with Internet access watch less television than before the household started using the Internet. *Id.* at 67.

<sup>53</sup> *Id.* at 34.

<sup>54</sup> *Id.* at 35.

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

The *WCLA Internet Report* is just one more demonstration that the Internet **has** become a true surrogate for more traditional media. Combined with the *Nielsen Survey* and the record materials in Media General's comments evidencing the use and availability of local information over the Internet,<sup>57</sup> this data demonstrate that repeal of the newspaper broadcast cross-ownership rule will not harm the marketplace of ideas anywhere, regardless **of** market size.

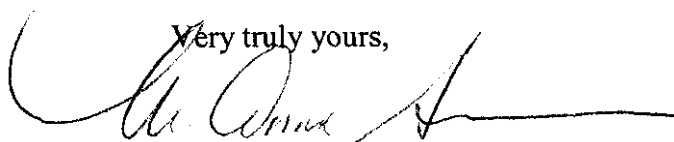
### ***Conclusion***

The vast majority of comments in this proceeding that address the newspaper cross-ownership rule call for its repeal. Ample and empirical evidence has been entered into the record in support of full, complete and final repeal. Those calling for its retention or replacement provide no systematic empirical evidence in support.

Chairman Powell has properly noted, and your remarks last week to the Museum of TV and Radio echoed, that the FCC bears the burden of proof in court to provide an empirical and defensible explanation based on the record either to retain a media ownership rule -- including the newspaper broadcast cross-ownership rule -- **or** to replace it with a new rule. No such empirical or defensible explanation is available on the record to the FCC to retain the newspaper cross-ownership rule **or** to replace it with a similar rule. Some advocates of retaining the rule **or** developing a similar new rule may point, perhaps in desperation, to some of the studies reviewed in this letter. But, as noted above, those studies provide no such support. We are confident that anyone -- FCC Commissioners, FCC staff, **or** federal judges-- reviewing these studies will reach the same conclusion as reached by two of the nation's leading economists: there is no support for any form of **a** newspaper broadcast cross-ownership rule.

As required by Section 1.1206(b), **two** copies of this letter are being submitted for each of the above-referenced dockets.

Very truly yours,



John R. Feore, Jr.  
M. Anne Swanson

MAS2/tal  
Enclosures

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<sup>57</sup> See, e.g., *Media General 2003 Reply Comments* at 15-18; *Media General 2003 Initial Comments* at Appendices 9-14 ("Internet Sites in Converged Markets"); *Media General 2002 Reply Comments* at 8-11; and *Media General 2001 Initial Comments* at Appendices 9-14 ("Internet Sites in Converged Markets").

Commissioner Kathleen Q. Abemathy  
April 22, 2003  
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cc w/encl. (by hand):

The Honorable Michael K. Powell  
The Honorable Kevin J. Martin  
The Honorable Michael J. Copps  
The Honorable Jonathan S. Adelstein  
Marsha J. MacBride, Esquire  
Susan M. Eid, Esquire  
Catherine C. Bohigian, Esquire  
Jordan Goldstein, Esquire  
Johanna Mikes, Esquire  
Stacy Robinson, Esquire  
W. Kenneth Ferree, Esquire  
Paul Gallant, Esquire  
Jane E. Mago, Esquire  
Dr. Simon Wilkie  
Ms. Marlene H. Dortch (two copies for each docket referenced above)



# Critique of “Consumer Substitution Among the Media”

By James N. Rosse

April 16,2003

## 1. Introduction

In a paper titled “Consumer Substitution Among the Media,” Professor **Joel** Waldfogel has used two bodies of data to study patterns of media usage by consumers’. This study is of interest because of its possible hearing on the continued FCC regulation of cross ownership of daily newspapers and broadcast stations.

Professor Waldfogel uses correlation and regression techniques to study patterns of media supply and usage. When he finds measures from two media co-varying negatively, he describes the media involved as “substitutes” for one another. Although he lays less emphasis on it, he recognizes positive covariance between two media as “complementary.” His findings of interest here are that overall uses of broadcast television and daily newspapers have a complementary relationship but a significant substitute relationship when comparing just broadcast TV news usage to daily newspaper usage.<sup>2</sup>

Professor Waldfogel asserts that these results are “...important because FCC media ownership policies are predicated to varying degrees on the extent of substitutability of media for various purposes – news, entertainment, etc.”<sup>3</sup> The unspoken implication of his results is, that since broadcast television and daily newspapers are “substitutes” in news reporting, the FCC should retain the cross-ownership rule.

The empirical work in Professor Waldfogel’s paper has such flaws that the quantitative results do not provide a meaningful basis for governmental review of a regulation. Moreover, even if the empirical work had been flawless, the structure of that work would not reveal underlying measures of substitution, complementarity, or any other useful information to evaluate the economic merit of a regulation. Consequently, the study does not inform the FCC’s evaluation of the newspaper cross-ownership rule and, if taken seriously, could even mislead that evaluation.

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<sup>1</sup> “Consumer Substitution Among Media” by Joel Waldfogel, Federal Communications Commission Media Ownership Working Group 2002-3, September 2002, 81 pages. Waldfogel is a member of the Wharton School faculty at the University of Pennsylvania.

<sup>2</sup> Interestingly, Professor Waldfogel found the “clearest” relationship “between Internet and broadcast TV, both overall and for news.” Waldfogel, page 3.

<sup>3</sup> Waldfogel, page 2.

## 2. Substitutes and Complements

Before looking at Professor Waldfogel’s empirical studies, we need to have some definitions and economic principles clearly in mind.

The concepts of “substitutability” and “complementarity” are well defined in economic theory. Two goods are said to be substitutes in demand if, in free market conditions, an increase in the price of **one** causes demand for the other to increase<sup>4</sup>. They are complements in demand if an increase in the price of one causes demand for the other one to decrease.

The economic concept of *substitutability* is important in studying market competition. If the product of a firm has many close substitutes, then one can be sure that, in free market conditions, the ~~firm~~ will not be able to extract significant monopoly rent by manipulating price. The concept is important in the study of merger activity, for instance, because of the risk that letting two firms producing close substitutes merge will sufficiently isolate them from the producers of other substitute products that they can gain significant monopoly rent by manipulating price.

Notice that the use of substitutability in the study of competition necessarily involves an action and a reaction. The action consists of a price increase by one (or a group **of**) firm(s). The reaction consists of the direct effect of that action on demand for a single fm’s product. If that reaction is positive then the products are substitutes and the firms are said to be competitive with the degree of competition being measured by size of the reaction’.

Professor Waldfogel’s use of the word “substitute” has almost nothing to do with well-established economic concept of substitution. Price never plays a role in his analysis! Consequently, the usual inferences about market structure and regulation that can be made from economic measures of substitution cannot be drawn from Professor Waldfogel’s concept.

Professor Waldfogel recognizes, however, that the availability or characteristics of other products might affect demand for a particular product. In a world of mutable products, the classical concept of substitutability can be expanded. For instance, if important qualities of

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<sup>4</sup> On pages 7-8, Waldfogel makes what I presume is a typographical error when he states that “each consumer’s demand for each of ten products depends (negatively) on the price of **the** own product and, if the products are substitutes, negatively (*sic*) on the other products’ prices.” The latter reference presumably should be *positively*.

<sup>5</sup> This concept lies as the heart of the test applied by the Department of Justice Antitrust Division in evaluating the consequences for competition of proposed mergers.

<sup>6</sup> Of the media reviewed by Waldfogel, only broadcast television and radio do not charge a subscription fee. Although not easily collected, information on both local prices and national price indices for other media—cable, satellite, internet access, magazines, and newspapers—would have been available.



product **B** are significantly improved and if that improvement results in a reduction in demand for product **A**, then it is reasonable to call product **B** a substitute for product **A** in the eyes of consumers. If there is a substantial response, the products can be said to be close substitutes and, therefore, closely competitive with one another. Thus, two daily newspapers can be quite distinguishable from one another in character and yet be close competitive substitutes for one other in this sense (as well as in other ways).

Notice the sign reversal that has taken place; the substitution effect in price is positive (competitor's price rise means greater demand for own product) while it is negative in quality interaction (competitor's product quality improvement means less demand for own product).

The competition for readers, viewers, and listeners among media outlets is almost entirely carried out in terms of product characteristics, product quality, and image building. Each media outlet is striving to attract an audience that it can sell profitably to its advertisers; it actively shapes the reading, viewing, or listening package it offers consumers in order to attract its desired audience. Since no two media products are ever identical, this is inter-product competition that is carried out largely at the level of the individual producer rather than at the level of media industries. In local markets, the competition frequently crosses media boundaries.

Sorting out Professor Waldfogel's theoretical underpinnings makes clear that there are two essential elements to the concept of substitutability that he is using. There must be both an action and a reaction to establish the presence of substitutability or complementarity. The action is change in the availability or characteristics of alternative products. The reaction is a change in demand for the product in question.

### **3. Results Using the Time-Series Data**

The first body of data that Professor Waldfogel uses consists of combined cross-section and time-series data from several published sources. It includes data on media usage by consumers, numbers of media, and demographic information in the **140** (out of a total of **210**) U.S. DMAs for which MSAs and Arbitron metro areas can be linked to the DMAs. Annual data for various time periods from 1993 to **2000** are used, depending on the availability of information. Media include television, daily newspapers, weekly newspapers, radio, internet, and cable TV.

This body of data has some advantages for the purposes Professor Waldfogel has in mind since it is both cross-section (multiple DMAs) and time-series (multiple years). It is not unreasonable to suppose that at least some autonomous change in media availability over time

might occur. This change in media availability and its effects on the usage of other media has the potential of producing the kinds of empirical results that Professor Waldfogel is seeking. Thus there is the possibility of carrying out the necessary statistical experiment without the need to create a full-blown structural model.'

Professor Waldfogel pursues this line of inquiry in **Part I** of his paper but without any significant results to show for the effort.' In the end, the most optimistic statement he can make is that "we conclude our analysis of the aggregate data with the observation that there is some evidence of consumer substitution across the media." From this part of the study, he reports no results whatsoever regarding the specific relationship between daily newspapers and broadcast television. For these two media, there is no report of measures based on his concept of "substitution," much less the actual economic definition of substitution. Thus, this part of the study cannot inform the FCC's evaluation of the newspaper cross-ownership rule.

#### **4. Results Using the Cross-Section Data**

The second body of data is drawn from Scarborough Research and consists of survey responses from nearly 180,000 individuals taken in the later half of 1999 and first half of 2000. The respondents reported on their usage of newspaper, television, cable and satellite, radio, and internet media with a fair amount of detail. Demographic data on the respondents were also available.

This data set permitted a fairly elaborate mapping of consumer preferences among the media, and that is what **Part II** of the Waldfogel paper is really all about." For instance, we learn in Table 12, page 74, that respondents who watch more TV are very significantly more likely to subscribe to a daily newspaper (column 1) and that respondents who subscribe to a daily newspaper are very significantly more likely to watch more TV per week (column 4). Very similar results are shown in Table 13, page 75, where it is shown that respondents who read newspapers are likely to watch more TV news, and that viewers of TV news are more likely to subscribe to a daily newspaper.

Although Professor Waldfogel never comes out and says so, one is tempted to say that the results described in the last paragraph demonstrate that daily newspapers and broadcast TV

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<sup>7</sup> Professor Waldfogel misinterprets one of his data series such that, even if his empirical work were flawless, the interpretation of the results would be incorrect. He incorrectly interprets "households using television" as an overall measure of television viewing, excluding cable. (Waldfogel, p. 14) The variable, however, captures viewing of broadcast, cable, satellite, and videotaped programming.

<sup>8</sup> Waldfogel, pages 10-24 and tables on pages 46-61.

<sup>9</sup> Waldfogel, page 24.

<sup>10</sup> Waldfogel, pages 25-37 and tables on pages 63-79.

are complementary, rather than substitutable, products. While the statement may or may not be true, it is not proved by these empirical results for the simple reason that no experiment has been carried out here. There are no cause and effect. There is just a simple apparent truth — people who like to read newspapers tend to watch TV and, especially, TV news, and vice versa. The only way that either complementarity or substitutability could be established is if there were a change in the availability and/or quality of one product that had a resulting effect on usage of the other. Since this data set is a single cross-section and in the absence of a full-blown structural model, it simply does not permit that kind of experiment. Professor Waldfogel recognizes this shortcoming when he says "One cannot draw firm inferences about substitutability **from** these data directly without additional assumptions."

I have belabored this point using an example (two paragraphs above) that one might think is favorable to dropping the daily newspaper – broadcast TV cross-ownership rule in order to make a very simple and important point that applies to all of the results obtained using this second body of data. The data simply do not permit any inference of substitutability or complementarity among media products. Rather, the results merely depict consumer preferences among media, no more and no **less**.

Professor Waldfogel goes on to find what he believes is strong evidence that broadcast TV news and daily newspapers are substitutes. His Table 14 on page 76 studies what he calls the "news-entertainment gap." You can best understand what he means by the "news-entertainment gap" by referring to Table 8 on page 71. There he reports that respondents in this data set averaged 35.47 half hours of TV viewing per week, of which **5.31** half hours were devoted to news. From this information he constructs what he calls a "news-entertainment gap" for broadcast television. For each respondent, he subtracts the half hours of "entertainment" viewing (total viewing minus news viewing) from the half hours of TV news reported by that respondent. Thus, by this calculation, the average news-entertainment gap for television for all respondents is  $5.31 - (35.47 - 5.31) = -24.85$ , a negative number.

Using similar logic and again referring to Table 8 on page 71, Professor Waldfogel constructs news-information gaps for radio ( $0.28 - (2.32 - 0.28) = -1.76$ ), for internet ( $0.64 - (3.97 - 0.64) = -2.39$ ), and for cable ( $0.82 - (8.40 - 0.82) = -6.76$ ). He does not display these calculations and you need to read his paper closely to realize that this is how these variables are defined and what they look like. Note that the constructed variables are all negative at their average values for the sample.

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<sup>11</sup> Waldfogel, page 32

What difference does it make? I will examine only the interaction of the TV news-entertainment gap and daily newspaper usage; similar remarks apply to each of the other news-entertainment gaps, but the conclusion is so strong that it does not need to be repeated.

Returning to the TV-newspaper example, what Professor Waldfogel has constructed is pretty much just a negatively valued mirror of his TV half hours per week variable. He has taken what will generally be a fairly large number (half hours of TV entertainment per week) and subtracted it from a relatively small number (half hours of TV news per week). That's enough to ensure that the constructed variable will almost always take on a negative value in any given response. Further, variation in the entertainment component of the calculated variable is likely always to be larger in absolute value than variation in the news component.

The result is that the constructed variable will be nothing neither more nor less than a slightly distorted, negatively valued, mirror image of the total half hours of TV viewing per week variable. The variation in the value of this variable among respondents that drives the statistical estimation of the parameters in Table 14 will be generated primarily by changes in the non-news TV viewing half hours per week.

Now look at columns 1 and 4 in each of Tables 12, 13, and 14 on pages 74-76. **As** noted previously, Tables 12 and 13 show a positive interaction between broadcast television viewing and daily newspaper reading, suggestive of possible complementarity between these media products. Table 14 shows what appears to be a completely different result; there is now a highly significant negative interaction between broadcast television viewing and newspaper reading. But that result is an illusion generated by the fact that the TV: News – Ent gap variable used in this equation is essentially nothing but the negative of the half hours of TV viewing per week used in Table 12!

Previously, we established the fact that Professor Waldfogel's conclusion that newspapers serve as substitutes for **TV news**<sup>12</sup> is based on an incomplete experiment that makes the inference of substitutability unjustified. Now it is clear that it is also based on the seriously flawed and quite meaningless empirical results reported in Table 14. Table 11 on page 73 reports similarly flawed correlation results. Thus, this **part** of the study cannot inform the FCC's evaluation of the newspaper cross-ownership rule. Indeed, there is a significant risk that this faulty result could misinform the FCC's evaluation.

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<sup>12</sup> Waldfogel, page 34.

## 5. Professor Waldfogel’s Conclusions

In concluding his study, Professor Waldfogel reports on some patterns of media usage by minority groups and cites this as additional evidence of substitution among media. While quite interesting and even suggestive in its own right, these results can not accomplish any more than that — since they result from a single cross-section data set, they cannot carry the burden of cause and effect needed to establish substitutability among media in the absence of a full-blown structural model.

Professor Waldfogel finishes by summarizing his results in a large matrix displayed in Table 18 on pages 80-81 and explained on pages 37-39. His claim that his results demonstrate clear evidence of substitutability between TV news and daily newspapers” is supported only by baseless inference from the flawed empirical results described at the end of the last section and reported in Tables 11 and 14. This matrix does not provide any meaningful information for the FCC’s review of the newspaper cross-ownership rule.

## 6. Does It Matter?

It struck me, as I studied Professor Waldfogel’s results, that even if they were all true and accepted, they do not provide a reason for retaining the broadcast **TV** – daily newspaper cross-ownership rule. They do not address the right questions.

Cross-ownership ought to be allowed if there is evidence that sufficiently many close substitutes are available in competitive market places to ensure that attempts to extract monopoly rents or to restrict the free flow of ideas will fail.

Professor Waldfogel’s large data set in Section I (reported in Tables 1-7, pages 46-53) provided a good bit of information about the number of competitive media there are in most markets and his general conclusion that consumer substitution across the media is a pervasive phenomenon are somewhat helpful in this regard even though they do not appear to have been constructed with this objective in mind.

In the 1960s, when the initiatives that ultimately led to the cross-ownership rule began, it may well have been true that there was inadequate competition in many markets to prevent abuse due to media cross-ownership. In those days, there were only three networks, no CATV, no satellite TV, no internet, and FM radio broadcast was still fairly young. There were seldom more than four viable broadcast TV outlets in markets below the top 20 **DMAs**, and many small and medium sized markets were served by only one or two broadcasters. *One* of the key policy

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<sup>13</sup> Waldfogel, page 39

questions in those days was: How can we get enough cities with four viable broadcasters so that an additional network can survive?

It was also true that, by the **1960s** direct daily newspaper competition had largely disappeared from all but the largest twenty or so U.S. cities. **As** a result, many communities had a limited number of competitive media outlets.

Another factor was that the technologies of information gathering and management used at that time had little in common between broadcast and print media. This limited the benefits that might be obtained through the closer cooperation that cross ownership might make **possible**.<sup>14</sup>

Changes since then have been dramatic. Technology and the introduction of mandatory **c**amage on **CATV** have made UHF fully competitive with **VHF**, the number of viable broadcast outlets both nationally and in most communities has more than doubled, and there are now at least six significant broadcast networks. Cable and satellite **TV** have also created vast opportunities for programming and for specialized networks of many kinds, including a **number** of news networks. The internet has added a very real dimension of media information and entertainment.

Dramatic changes in technologies have reduced the advantages of large central city dailies relative to their smaller nearby competitors fostering a new level of competition among daily newspapers. Those technologies have also made the entry and growth of weekly newspapers possible, something that Professor Waldfogel reports in Table 6, page 52. Those same technologies and changes in postal regulations made direct mail advertising a much more serious competitor for all newspapers. Technology has **also** made remote publishing economically possible so that one can now get daily home delivery in most urban areas of at least two national dailies.

Another consequence of changing technology is that what used to be a problematic matching of news collection and dissemination methodologies between broadcast and print enterprises is no longer a significant problem. There are many examples of success and the benefits of combined electronic and print journalism are especially evident in reporting the war for Iraq.

What all of this means is that repealing the cross-ownership rule cannot help but be successful. There is ample competition from close substitutes to ensure that monopolization does

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<sup>14</sup> **This** author, with two colleagues, **submitted** a position paper that reflected the views of these paragraphs in Docket 18110. The paper was titled "Economic Issues in the Joint Ownership of Newspaper and Television Media" **by** James N. Rosse, Bruce M. Owen, and David L. Grey, **May 1970**.

not take place in either the marketplace of ideas or in the related economic markets, so there is no downside risk. However, there is a possible upside benefit in that it may well be true that there are gains in product quality and production efficiency to be found by entrepreneurs willing to take the chance.

## **I. Summary and Conclusion**

In the presence of these facts and this history, it seems to me that the research reported by Professor Waldfogel simply misses the point and that, even if it were flawless, it would be irrelevant to the issue at hand. None of the empirical work in **the** paper informs the **FCC’s** decision in the review of media ownership rules, some of it could actually misinform that decision, and certainly none of the results provides any support for continuation of the newspaper cross-ownership rule.





## Statement of Jerry A. Hausman

1. My name is Jerry A. Hausman. I am MacDonald Professor of Economics at the Massachusetts Institute of Technology in Cambridge, Massachusetts, 02139.
2. I received an A.B. degree from Brown University and a B.Phil. and D.Phil. (Ph.D.) in Economics from Oxford University where I was a Marshall Scholar. My academic and research specialties are econometrics, the use of statistical models and techniques on economic data, and microeconomics, the study of consumer behavior and the behavior of firms. I teach a course in "Competition in Telecommunications" to graduate students in economics and business at MIT each year. Competition among broadcast TV, cable networks, direct to home satellite (DTH) providers, newspapers, and radio is one of the primary topics covered in the course. In December 1985, I received the John Bates Clark Award of the American Economic Association for the most "significant contributions to economics" by an economist under forty years of age. I have received numerous other academic and economic society awards. My curriculum vitae is attached as Exhibit 1.
3. I have done significant amounts of research in the telecommunications industry. I have published numerous papers in academic journals and books about telecommunications. I have also done research and published academic papers regarding advertising on broadcast TV, cable TV, and radio.
4. I have previously submitted Declarations to the Commission regarding the competitive impacts of policies affecting DTH, DBS, cable TV, and broadcast TV service offerings. I have also submitted Declarations regarding competition between cable TV and DTH and broadcast TV. I have previously made presentations to the Department of

Justice regarding competition in TV, cable TV, and radio. I have also served as a consultant to the Tribune Corporation over the past decade. Tribune owns broadcast TV stations, radio stations, and newspapers. I have also consulted for a variety of companies that sell consumer goods and do large amounts of advertising, *e.g.*, Budweiser, Kodak, and Revlon.

5. In March 2002, I submitted a Declaration to the Commission that included two empirical studies of the effects of consolidation in the radio industry that has occurred since the passage of the Telecommunications Act of 1996. In the first study I found that consolidation did not lead to higher prices for radio advertising, while in the second study I found that consolidation has resulted in increases in format diversity. In January 2003, I submitted a Statement to the Commission that extended the previous research in two ways. First, I collected data on actual rates charged by radio stations in additional markets that have experienced significant increases in concentration, and I performed additional econometric analyses of the effect of these increases in concentration on advertising prices. Second, I collected data on cable television advertising prices to study whether cable advertising provides a competitive substitute for radio advertising. The results from the first part of my further study confirmed that, across all size markets, consolidation has not led to higher radio advertising prices, even where the top two firms control more than eighty percent of the revenue. The results of the second part of my further study show a statistically significant relationship between increases in cable television advertising prices and the prices of radio advertising.

6. One of the core principles of economics is that exchanges of assets and property tend to be beneficial, both to the immediate parties in the exchange as well as to

consumers and producers who ultimately benefit from lower prices and better services made possible by market exchanges. From an economic perspective, potential harms from market exchanges occur only under exceptional circumstances. The potential economic harms from market exchanges between and among commercial firms are largely the subject of antitrust laws.

7. Antitrust laws provide a means to account for the exceptional case of potential economic harms from acquisitions or exchanges between commercial firms. Economic antitrust analyses of mergers are based on a case-by-case examination of the potential changes in consumer welfare resulting from a merger between two companies.<sup>1</sup> These analyses are not based ultimately on arithmetic indices.<sup>2</sup> The economic recommendations to remedy the unusual case of harm resulting from a proposed merger do not rely on arithmetic indices or predetermined prohibitions on broad classes of possible mergers.

8. The FCC's newspaper cross-ownership rule prohibits all ownership exchanges of media licenses -- both transactions that would be economically beneficial to consumers and the exceptional case that might be harmful to consumers. The federal antitrust agencies, the Department of Justice and the Federal Trade Commission, have far better tools to distinguish the economic effects of proposed mergers than the FCC in its application and enforcement of the newspaper broadcast cross-ownership rule.

9. Many economic studies of media ownership have been conducted in recent years including a few that I have authored, such as those described in the Declaration and

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<sup>1</sup> I analyze how to analyze mergers using a consumer welfare standard in J. Hausman and G. Leonard, "Economic Analysis of Differentiated Products Mergers Using Real World Data," George Mason Law Review, 5, 3, 1997.

<sup>2</sup> For example, the Department of Justice and Federal Trade Commission Horizontal Merger Guidelines (Merger Guidelines, April 2, 1992) state: "However, market share and concentration data provide only the starting point for analyzing the competitive impact of a merger." (§ 2.0) The HHI index is calculated from market share and concentration data.

Statement that I submitted to the FCC in March 2002 and January 2003, respectively, and that are discussed above in Paragraph 5. I am aware of no economic study, and certainly none that I have authored, that would conclude that any form of newspaperbroadcast cross-ownershiprule administeredby the FCC would be economically superior to relying instead on the antitrust reviews of the federal antitrust agencies. Indeed, to the extent that such a rule raises the costs of economicallybeneficial exchanges, and would prohibit many useful exchanges, such a newspaperbroadcast cross-ownershiprule decreases both economic efficiency and consumer welfare.

10. The observation that advertising markets may include both newspapers and broadcast outlets is not a basis of support for a newspaperkroadcast cross-ownership rule, as I concluded in the studies discussed in Paragraph 5. Mergers among firms that compete in the same market often increase competition and consumer **welfare**.<sup>3</sup> The empirical finding that advertising markets contain TV, radio, newspapers, and cable TV means that antitrust authorities would continue to review mergers between newspapers and broadcast outlets, as they have done in the **past**.<sup>4</sup> For example, the Department of Justice in recently reviewing and approving News Corporation's proposed acquisition of Chris-Craft Industries, required News Corporation to divest a broadcast television channel in Salt Lake City, because of a concern that advertising prices would increase without the divestiture.<sup>5</sup>

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<sup>3</sup> The Merger Guidelines state: "While challenging competitively harmful mergers, the Agency seeks to avoid unnecessary interference with the larger universe of mergers that are either competitively beneficial or neutral." (§ 0.1)

<sup>4</sup> I expect that Internet advertising also competes in this market, but available data has not yet permitted me to test **this** hypothesis.

<sup>5</sup> See **US v. The News Corporation Ltd. Fox Television Holdings, Inc., and Chris-Craft Industries, Inc.** Proposed Final Judgment and Competitive Impact Statement, **66 FR** 29997, June **4, 2001**.

11. While the government may have non-economic objectives to intervene in markets such as the newspaperhroadcast cross-ownershiprule, such a rule cannot rely on economic studies, including mine, for support.

12. In addition to providing advertising, media outlets also provide content (such as news and entertainment) to consumers. The study by Professor Joel Waldfogel attempts to determine whether different media are substitutes for one another from the perspective of consumers.<sup>6</sup> Prof. Waldfogel's results provide no support for a newspaperhroadcast cross-ownershiprule.

13. Prof. Waldfogel's assertion that different media are substitutes for one another is largely based on his analysis of individual-level survey data. Prof. Waldfogel constructs measures of relative news use for each medium by calculating how much people use each medium for news relative to their use of the medium for other purposes. Prof. Waldfogel then runs a regression of relative news use for one medium on the measures of relative news use for the other media. Prof. Waldfogel interprets a negative and statistically significant coefficient to mean that news in one medium serves as a substitute for news in another medium.

14. Prof. Waldfogel's claim that his regression results provide evidence of media substitution is incorrect. **An** alternative interpretation of his results is that consumers prefer to obtain their news from a particular medium. Some people may mainly rely on newspapers while other people rely on TV for their main source of news. This interpretation would result in a negative correlation between news use of one medium and news use of other media. Because of this alternative explanation, Prof. Waldfogel's

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<sup>6</sup> J. Waldfogel, "Consumer Substitution Among Media," Federal Communications Commission, Media Ownership Working Group Paper No. 3, September **2002**.

regression results cannot be used to claim that different media serve as substitutes for one another.’

15. **An** additional problem with Prof. Waldfogel’s analysis is that it focuses entirely on statistical significance and not economic significance. His individual-level regressions contain almost 180,000 observations. Since statistical precision increases with sample size, it is not surprising that all of the coefficients he reports in Table 14 on p. 76 are statistically significantly different from zero at the 1% level. However, a coefficient that is statistically significant is not necessarily economically significant. For example, the coefficient on the TV relative news use variable in the newspaper regression (Column 4) is  $-0.0002$  and is statistically significant. If one looked only at measures of statistical significance (as Prof. Waldfogel does), one would conclude that TV news substitutes for newspapers. However, an analysis of the economic significance of this coefficient leads to a very different conclusion. This coefficient indicates that an increase of one half-hour of TV news per week reduces the probability of reading a daily newspaper by approximately 0.02 percentage points. Hence while the effect of TV news use on newspaper use is statistically significant it is economically insignificant. Prof. Waldfogel’s failure to consider the economic significance of his results provides yet another reason his results cannot be relied upon.

16. **As** I discuss above in Paragraph 7, arithmetic indices such as the HHI provide only a starting point for analyzing the competitive impacts of mergers. The economic theory of oligopoly justifies the use of the HHI for this purpose, because under certain circumstances the HHI is a function of the price-cost margin **and** the market elasticity of

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<sup>1</sup> Indeed, Waldfogel’s analysis of aggregate data, which does not suffer from this potential problem, finds almost no evidence of substitution among media.

demand.’ Thus, changes in the HHI may indicate the changes in economic performance such as the price-cost margin of an oligopoly, following the merger of two firms.

17. In contrast, there is no economic theory that links diversity-related outcomes to underlying market structure. Nor would a “diversity index” yield predictions of changes in diversity in a market, following a merger of two firms. A merged firm may find it to be profitable to increase the diversity of its content offerings. My previous empirical research that I submitted to the Commission found that an increase in format diversity often followed after mergers had occurred in a given market. Hence, any attempt to create a “diversity index” based on market structure measures would be arbitrary and not have a basis in economic theory. An arbitrary “diversity index” would not predict either the economic performance or amount of diversity that would follow after the merger of two firms.

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<sup>8</sup> See, e.g., J. Hausman *et al.*, “A Proposed Method for Analyzing Competition Among Differentiated Products,” *Antitrust Law Journal* 60, 1992. An alternative justification for the use of the HHI was provided by George Stigler, who showed that the HHI could be related to the likelihood of collusion. See G. Stigler, “A Theory of Oligopoly,” *Journal of Political Economy* 72, 1964.

**JERRY A. HAUSMAN**

Massachusetts Institute of Technology  
Department of Economics  
Building E52-271A  
Cambridge 02139  
(617) 253-3644

EDUCATION:

OXFORD UNIVERSITY

D. Phil. 1973 (Ph.D)

B. Phil. 1972

BROWN UNIVERSITY

A.B. (Summa Cum Laude), 1968

THESIS: "A Theoretical and Empirical Study of Vintage Investment and Production in Great Britain,"  
Oxford University, 1973.

FELLOWSHIPS, HONORS AND AWARDS:

Phi Beta Kappa

Marshall Scholar at Oxford, 1970-1972

Scholarship at Nuffield College, Oxford, 1971-1972

Fellow, Econometric Society, 1979.

Frisch Medal of the Econometric Society, 1980

Fisher-Schultz Lecture for the Econometric Society, 1982

John Bates Clark Award of the American Economic Association, 1985

Jacob Marschak Lecture for the Econometric Society, 1988

Fellow, National Academy of Social Insurance, 1990

American Academy of Arts and Sciences, 1991.

Fellow, Journal of Econometrics, 1998.

Shann Memorial Lecture for the Australian Economics Society, 2003

EMPLOYMENT:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

1992- John and Jennie S. MacDonald Professor

1979- Professor, Department of Economics

1976-79 Associate Professor, Department of Economics

1973-76 Assistant Professor, Department of Economics

1972-73 Visiting Scholar, Department of Economics

VISITING APPOINTMENTS:

1986-87 Visiting Professor, Harvard Business School

1982-83 Visiting Professor, Harvard University Department of Economics

Visiting Positions: University of Washington, Brigham Young University, Australian National

University, Ecole Normale Supérieure, Oxford University, University of Sydney, Wuhan

University, Beihai University, University of Western Australia

U.S. ARMY, ANCHORAGE, ALASKA

1968-70 Corps of Engineers



## PROFESSIONAL ACTIVITIES:

Associate Editor, Bell Journal of Economics, 1974-1983  
 Associate Editor, Rand Journal of Economics, 1984-1988  
 Associate Editor, Econometrica, 1978-1987  
 Reviewer, Mathematical Reviews, 1978-1980  
 American Editor, Review of Economic Studies, 1979-82  
 Associate Editor, Journal of Public Economics, 1982-1998  
 Associate Editor, Journal of Applied Econometrics, 1985-1993  
 Member of MIT Center for Energy and Environmental Policy Research, 1973-  
 Research Associate, National Bureau of Economic Research, 1979-  
 Member, American Statistical Association Committee on Energy Statistics, 1981-1984  
 Special Witness (Master) for the Honorable John R. Bartels, U.S. District Court for the Eastern  
 District of New York in Carter vs. Newsday, Inc., 1981-82  
 Member of Governor's Advisory Council (Massachusetts) for Revenue and Taxation,  
 1984-1992  
 Member, Committee on National Statistics, 1985-1990  
 Member, National Academy of Social Insurance, 1990-  
 Member, Committee to Revise U.S. Trade Statistics 1990-1992  
 Director, MIT Telecommunications Economics Research Program 1988-  
 Board of Directors, Theseus Institute, France Telecom University, 1988-1995  
 Member, Conference on Income and Wealth, National Bureau of Economic Research, 1992-  
 Member, Committee on the Future of Boston, 1998  
 Advisory Editor, Economics Research Network and Social Science Research, 1998-  
 Advisory Editor, Journal of Sports Economics, 1999-  
 Member, GAO Expert Panel to advise USDA on Econometric Models of Cattle Prices, 2001-2

## PUBLICATIONS:

I. Econometrics

- "Minimum Mean Square Estimators and Robust Regression," Oxford Bulletin of Statistics, April 1974.
- "Minimum Distance and Maximum Likelihood Estimation of Structural Models in Econometrics," delivered at the European Econometric Congress, Grenoble: August 1974.
- "Full-Information Instrumental Variable Estimation of Simultaneous Equation Models," Annals of Economic and Social Measurement, October 1974.
- "Estimation and Inference in Nonlinear Structural Models," Annals of Economic and Social Measurement, with E. Berndt, R.E. Hall, and B.H. Hall, October 1974.
- "An Instrumental Variable Approach to Full-Information Estimators in Linear and Certain Nonlinear Econometric Models," Econometrica, 43, 1975.
- "Simultaneous Equations with Errors in Variables," Journal of Econometrics 5, 1977.
- "Social Experimentation, Truncated Distributions, and Efficient Estimation," with D. Wise, Econometrica, 45, 1977.
- "A Conditional Probit Model for Qualitative Choice," with D. Wise, Econometrica, 46, 1978.
- "Specification Tests in Econometrics," Econometrica, 46, 1978.
- "Non-Random Missing Data," with A.M. Spence, MIT Working Paper 200, May 1977

- "Attrition Bias in Experimental and Panel Data: The Gary Income Maintenance Experiment," with D. Wise, Econometrica, 47, 1979.
- "Missing Data and Self Selection in Large Panels," with Z. Griliches and B.H. Hall Annales de l'INSEE, April 1978.
- "Stratification on Endogenous Variables and Estimation," with D. Wise, in The Analysis of Discrete Economic Data, ed. C. Manski and D. McFadden, MIT Press, 1981.
- "Les models probit de choix qualitatifs," ("Alternative Conditional Probit Specifications for qualitative Choice.") (English Version), September 1977; **EPRI** report on discrete choice models, Cahiers du Seminar d'Econometrie, 1980.
- "The Econometrics of Labor Supply on Convex Budget Sets," Economic Letters, 1979
- "Panel Data and Unobservable Individual Effects," with W. Taylor, Econometrica 49, November 1981
- "Comparing Specification Tests and Classical Tests," with W. Taylor, August 1980, Economic Letters, 1981
- "The Effect of Time on Economic Experiments," invited paper at Fifth World Econometrics Conference, August 1980; in Advances in Econometrics, ed. W. Hildebrand, Cambridge University Press, 1982.
- "Sample Design Considerations for the Vermont TOD Use Survey," with John Trimble, Journal of Public Use Data, 9, 1981.
- "Identification in Simultaneous Equations Systems with Covariance Restrictions: An Instrumental Variable Interpretation," with W. Taylor, Econometrica, 51, 1983.
- "Stochastic Problems in the Simulation of Labor Supply," in Tax Simulation Models, ed. M. Feldstein, University of Chicago Press, 1983.
- "The Design and Analysis of Social and Economic Experiments," invited paper for **43rd** International Statistical Institute Meeting, 1981; Review of the ISI.
- "Specification and Estimation of Simultaneous Equation Models," in Handbook of Econometrics, ed. Z. Griliches and M. Intriligator, **vol. 1**, 1983.
- "Full-Information Estimators," in Kotz-Johnson, Encyclopedia of Statistical Science, vol. 3, 1983
- "Instrumental Variable Estimation," in Kotz-Johnson, Encyclopedia of Statistical Science, vol. 4, 1984
- "Specification Tests for the Multinomial Logit Model," with D. McFadden, Econometrica, **52**, 1984.
- "Econometric Models for Count Data with an Application to the Patents R&D Relationship," with Z. Griliches and B. Hall, Econometrica, 52, 1984.
- "The Econometrics of Nonlinear Budget Sets," Fisher-Shultz lecture for the Econometric Society, Dublin: 1982; Econometrica, 53, 1985.
- "The J-Test as a Hausman Specification Test," with H. Pesaran, Economic Letters, 1983

- "Seasonal Adjustment with Measurement Error Present," with M. Watson, Journal of the American Statistical Association, **1985**.
- "Efficient Estimation and Identification of Simultaneous Equation Models with Covariance Restrictions," with W. Newey and W. Taylor, Econometrica, **55**, **1987**.
- "Technical Problems in Social Experimentation: Cost Versus Ease of Analysis," with D. Wise, in Social Exuerimentation, ed. J. Hausman and D. Wise, **1985**.
- "Errors ~~in~~ Variables in Panel Data," with Z. Griliches, Journal of Econometrics, **1986**.
- "Specifying and Testing Econometric Models for Rank-Ordered Data," with P. Ruud; Journal of Econometrics, **1987**.
- "Semiparametric Identification and Estimation of Polynomial Errors in Variables Models," with W. Newey, J. Powell and H. Ichimura, Journal of Econometrics, **1991**.
- "Flexible Parametric Estimation of Duration and Competing **Risk** Models," with A. Han, Journal of Applied Econometrics, **1990**.
- "Consistent Estimation of Nonlinear Errors in Variables Models with Few Measurements," with W. Newey and J. Powell, **1987**.
- "Optimal Revision and Seasonal Adjustment of Updated Data: Application to Housing Starts," with M. Watson, Journal of the American Statistical Association Proceedings, **1991**.
- "Seasonal Adjustment of Trade Data," with R. Judson and M. Watson, ed. R. Baldwin, Behind the Numbers: U.S. Trade in the World Economy, **1992**.
- "Nonlinear Errors in Variables: Estimation of Some Engel Curves," Jacob Marschak Lecture of the Econometric Society, Canberra **1988**, Journal, **65**, **1995**.
- "Nonparametric Estimation of Exact Consumers Surplus and Deadweight **Loss**," with W. Newey, Econometrica, **1995**.
- "Misclassification of a Dependent Variable in Qualitative Response Models," with F. Scott-Morton and J. Abrevaya, Journal of Econometrics, **1998**.
- "Semiparametric Estimation in the Presence of Mismeasured Dependent Variables," with J. Abrevaya, Annales D'Economie et de Statistiaue, **55-56**, **1999**.
- "Response Error in a Transformation Model: Estimation of Wage Equations," with Jason Abrevaya, mimeo **1998**.
- "A New Specification Test **for** the Validity of Instrumental Variables," with J. ~~Hahn~~, Econometrica, **2002**.
- "Microeconometrics", Journal of Econometrics, 2000.
- "Instrumental Variables Estimation for Dynamic Panel Models with Fixed Effects", with J. Hahn and G. Kuersteiner, mimeo May **2001**.
- "Mismeasured Variables in Econometric Analysis: Problems from the Right and Problems from the Left", Journal of Economic Perspectives, **2001**.
- "Higher Order MSE of Jackknife 2SLS", with J. Hahn and G. Kuersteiner, revised mimeo **2003**.

"Notes on Bias in Estimators for Simultaneous Equation Models", with J. Hahn, Economic Letters, 2002

"Triangular Structural Model Specification and Estimation with Application to Causality", Journal of Econometrics, 2003

"Weak Instruments: Diagnosis and Cures in Empirical Econometrics", with J. Hahn, Dec. 2002, forthcoming in American Economic Review, 2003.

## II. Public Finance and Regulation

"The Evaluation of Results from Truncated Samples," with D. Wise, Annals of Economic and Social Measurement, April 1976.

"Discontinuous Budget Constraints and Estimation: The Demand for Housing," with D. Wise, J.F. Kennedy School Working Paper, July 1977; Review of Economic Studies, 1980.

"The Effect of Taxation on Labor Supply: Evaluating the Gary Negative Income Tax Experiment," with G. Butless, Journal of Political Economy, 1978.

"AFDC Participation -- Permanent or Transitory?," in Papers from the European Econometrics Meetings, ed. E. Charatsis, North Holland: 1981.

"The Effect of Wages, Taxes, and Fixed Costs on Women's Labor Force Participation," Journal of Public Economics, October 1980.

"The Effect of Taxes on Labor Supply," in How Taxes Affect Economic Behavior, ed. H. Aaron and J. Pechman, Brookings: 1981.

"Income and Payroll Tax Policy and Labor Supply," in The Unavoidable Side Effects of Economic Policy, ed. G. Burtless, St. Louis: 1981.

"Individual Retirement Decisions Under an Employer-Provided Pension Plan and Social Security," with G. Butless, Journal of Public Economics, 1982.

"Individual Retirement and Savings Decisions," with P. Diamond, Journal of Public Economics, 1984.

"Retirement and Unemployment Behavior of Older Men," in H. Aaron and G. Butless, Retirement and Economic Behavior, Brookings: 1984.

"Tax Policy and Unemployment Insurance Effects on Labor Supply," in Removing Obstacles to Economic Growth, ed. M. Wachter, 1984.

"Family Labor Supply with Taxes," with P. Ruud, American Economic Review, 1984.

"Social Security, Health Status and Retirement," with D. Wise, in Pensions, Labor, and Individual Choice, ed. D. Wise, 1985.

"The Effect of Taxes on Labor Supply," in Handbook on Public Economics, ed. A. Auerbach and M. Feldstein, 1985.

"Choice Under Uncertainty: The Decision to Apply for Disability Insurance," with J. Halpern, Journal of Public Economics, 1986.

"Household Behavior and the Tax Reform Act of 1986," with J. Poterba, Journal of Economic Perspectives, 1987, also published in French in Annales D'Economie et de Statistique, 1988.

- "Involuntary Early Retirement and Consumption," with L. Paquette, ed. G. Burtless, Economics of Health and Aging, 1987.
- "Income Taxation and Social Insurance in China," in Sino-U.S. Scholars on Hot Issues in China's Economy, 1990.
- "On Contingent Valuation Measurement of Nonuse Values," with P. Diamond, in Contingent Valuation: A Critical Appraisal, ed. J. Hausman, 1993.
- "Does Contingent Valuation Measure Preferences? Experimental Evidence," with P. Diamond, G. Leonard, M. Denning, in Contingent Valuation: A Critical Appraisal, ed. J. Hausman, 1993.
- "Contingent Valuation: Is Some Number Better than No Number?" with P. Diamond, December 1993, Journal of Economic Perspectives, 8, 1994.
- "A Utility-Consistent Combined Discrete Choice and Count Data Model Assessing Recreational Use Losses Due to Natural Resource Damage," with G. Leonard and D. McFadden, Journal of Public Economics, 56, 1995.
- "Contingent Valuation Measurement of Nonuse Values," with P. Diamond, ed. R.B. Stewart, Natural Resource Damages: A Legal, Economic, and Policy Analysis, 1995.
- "A Cost of Regulation: Delay in the Introduction of New Telecommunications Services," with T. Tardiff, 1995, ed. A. Dumort and J. Dryden, The Economics of the Information Society, 1997.
- "Valuation and the Effect of Regulation on New Services in Telecommunications," Brookings Papers on Economic Activity: Microeconomics, 1997.
- "Taxation By Telecommunications Regulation," Tax Policy and the Economy, 12, 1998.
- "Taxation by Telecommunications Regulation: The Economics of the E-Rate", AEI Press, 1998.
- "Economic Welfare and Telecommunications Welfare: The E-Rate Policy for Universal Service Subsidies," with H. Shelanski, Yale Journal on Regulation, 16, 1999.
- "Efficiency Effects on the U.S. Economy from Wireless Taxation", National Tax Journal, 2000.
- "Residential Demand for Broadband Telecommunications and Consumer Access to Unaffiliated Internet Content Providers", with H. Sider and J.G. Sidak, Yale Journal on Regulation, 18, 2001.
- "Regulating the U.S. Railroads: The Effects of Sunk Costs and Asymmetric Risk," with S. Myers, Journal of Regulatory Economics, 2002.
- "Regulated Costs and Prices in Telecommunications," Forthcoming International Handbook of Telecommunications, 2003.
- "Will New Regulation Derail the Railroads?," Competitive Enterprise Institute, October 2001
- "Sources of Bias and Solutions to Bias in the CPI", NBER Discussion paper **9298**, Oct. **2002**, Journal of Economic Perspectives, 2003.

### **III. Applied Micro Models**

- "Project Independence Report: A Review of U.S. Energy Needs up to 1985," Bell Journal of Economics, **Autumn** 1975.
- "Individual Discount Rates and the Purchase and Utilization of Energy Using Durables," Bell Journal of Economics, **Spring** 1979.

- "Voluntary Participation in the Arizona Time of Day Electricity Experiment," with D. Aigner, in EPRI Report, Modeling and Analysis of Electricity Demand by Time of Day, 1979; Bell Journal of Economics, 1980.
- "A Two-level Electricity Demand Model: Evaluation of the Connecticut Time-of-Day Pricing Test," in EPRI Report, Modeling and Analysis of Electricity Demand by Time of Day, 1979; Journal of Econometrics, 1979.
- "Assessing the Potential Demand for Electric Cars," with S. Beggs and S. Cardell, Journal of Econometrics, 1981.
- "Assessment and Validation of Energy Models," in Validation and Assessment of Energy Models, ed. S. Gass, Washington: Department of Commerce, 1981.
- "Exact Consumer **Surplus** and Deadweight Loss," American Economic Review, 71, 1981
- "Appliance Purchase and Usage Adaptation to a Permanent Time of Day Electricity Rate Schedule," with J. Trimble, Journal of Econometrics, 1984.
- "Evaluating the Costs and Benefits of Appliance Efficiency Standards," with P. Joskow, American Economic Review, 72, 1982.
- "Information Costs, Competition and Collective Ratemaking in the Motor Carrier Industry," American University Law Review, 1983.
- "An Overview of **IFFS**," in Intermediate Future Forecasting System, ed. S. Gass et al., Washington: 1983.
- "Choice of Conservation Actions in the AHS," in Energy Simulation Models, ed. R. Crow, 1983.
- "Patents and R&D: Searching for a Lag Structure," with B. Hall and Z. Griliches, in Actes du Colloque Econometrie de la Recherche, Paris: 1983.
- "The Demand for Optional Local Measured Telephone Service," in H. Trebing ed., Adjustment to Regulatory Pricing and Marketing Realities, East Lansing: 1983.
- "Patents and R&D: Is There a Lag?," with B. Hall and Z. Griliches, 1985; International Economic Review, 1986.
- "Price Discrimination and Patent Policy," with J. MacKie-Mason, Rand Journal of Economics, 1988
- "Residential End-Use Load Shape Estimation from Whole-House Metered Data," with I. Schick, P. Voro, and M. Ruane, IEEE Transactions on Power Systems, 1988.
- "Competition in Telecommunications for Large Users in New York," with H. Ware and T. Tardiff, Telecommunications in a Competitive Environment, 1989.
- "Innovation and International Trade Policy," with J. MacKie-Mason, Oxford Review of Economic Policy, 1988.
- "The Evolution of the Central Office Switch Industry," with W. E. Kohlberg, in ed. S. Bradley and J. Hausman, Future Competition in Telecommunications, 1989.
- "Future Competition in Telecommunications," 1987; ed. S. Bradley and J. Hausman, Future Competition in Telecommunications, 1989.
- "Joint Ventures, Strategic Alliances and Collaboration in Telecommunications," Regulation, 1991
- "An Ordered Probit Model of Intra-day Securities Trading," with A. Lo and C. MacKinlay, Journal of Financial Economics, 1992.
- "A Proposed Method for Analyzing Competition Among Differentiated Products," with G. Leonard and J.D. Zona, Antitrust Law Journal, 60, 1992.

- "Global Competition and Telecommunications," in Bradley, et al., ed., Globalization. Technolony and Cometition, 1993.
- "The Bell Operating Companies and AT&T Venture Abroad and British Telecom and Others Come to the US," in Bradley, et al., ed., Globalization. Technoloey and Comuetition, 1993.
- "The Effects of the Breakup of AT&T on Telephone Penetration in the US," with T. Tardiff and A. Belinfante, American Economic Review, 1993.
- "Competitive Analysis with Differentiated Products," with G. Leonard and D. Zona, Annales. D'Economie et de Statistiaue, 34, 1994.
- "Proliferation of Networks in Telecommunications," ed. D. Alexander and W. Sichel, Networks. Infrastructure. and the New Task for Reelulation, University of Michigan Press, 1996.
- "Valuation of New Goods Under Perfect and Imperfect Competition," ed. T. Bresnahan and R. Gordon, The Economics of New Goods, University of Chicago Press, 1997.
- "Competition in Long Distance and Equipment Markets: Effects of the MFJ," Journal of Manaeerial and Decision Economics, 1995.
- "The Cost of Cellular Telephone Regulation," MIT Working Paper, January 1995.
- "State Regulation of Cellular Prices," Wireless Communications Forum, Volume III, April 1995.
- "Efficient Local Exchange Competition," with T. Tardiff, Antitrust Bulletin, 1995
- "Superstars in the National Basketball Association: Economic Value and Policy," with G. Leonard, Journal of Labor Economics, 15, 4, 1997.
- "Valuation of New Services in Telecommunications," with T. Tardiff, The Economics of the Information Society, ed. A. Dumort and J. Dryden, Office for Official Publications of the European Communities, Luxemborg, 1997.
- "Market Definition Under Price Discrimination," with G. Leonard and C. Velturo, Antitrust Law Journal, Vol. 64, 1996.
- "Characteristics of Demand for Pharmaceutical Products: An Examination of Four Cephalosporins," with S. Fisher Ellison, I. Cockburn and Z. Griliches, Rand Journal of Economics, 28, 3, 1997.
- "Telecommunications: Building the Infrastructure for Value Creation," S. Bradley and R. Nolan, eds. Sense and Respond, 1998.
- "Achieving Competition: Antitrust Policy and Consumer Welfare," with G. Leonard, World Economic Affairs, Vol. 1, No. 2, 1997.
- "The CPI Commission and New Goods," The American Economic Review, May 1997.
- "Economic Analysis of Differentiated Products Mergers Using Real World Data," with G. Leonard, Georee Mason Law Review, 5, 3, 1997.
- "Cellular Telephone, New Products and the CPI," Journal of Business and Economics Statistics, 1999.
- "Regulation by TSLRIC: Economic Effects on Investment and Innovation," Multimedia Und Recht, 1999; also in J.G. Sidak, C. Engel, and G. Knieps eds., Cometition and Reelulation in Telecommunications, Boston: Kluwer Academic Publishers, 2000.
- "Efficiencies from the Consumer Viewpoint," with G. Leonard, Georee Mason Law Review, 7, 3, 1999.

“The Effect of *Sunk* Costs in Telecommunication Regulation,” in J. Alleman and E. Noam, eds, The New Investment Theory of Real Options and its Implications for Telecommunications Economics, 1999.

“A Consumer-Welfare Approach to the Mandatory Unbundling of Telecommunications Networks,” with J. Gregory Sidak, Yale Law Journal, 1999.

“Competition in U.S. Telecommunications Services Four Years After the 1996 Act, with R. Crandall, in S. Peltzman and C. Winston, eds., Deregulation of Network Industries, 2000.

“The Impact of Duality on Productive Efficiency and Innovation,” with G. Leonard and J. Tirole, revised April, 2001, Rand Journal of Economics, 2003.

“The Competitive Effects of a New Product Introduction: A Case Study”, with G. Leonard, Journal of Industrial Economics, 50,2002.

“Cable Modems and DSL: Broadband Internet Access for Residential Customers,” with J. Gregory Sidak, and Hal J. Singer, American Economic Review, 91,2001

“Mobile Telephone,” in M. Cave et. al. eds, Handbook of Telecommunications Economics, North Holland, 2002

“Lessons from United States Telecommunications Policy for the New Millenium,” with R. Crandall, mimeo May 2001

“Competition and Regulation for Internet-related Services”, in Korea Institute for Industrial Economics and Trade, Industrial Competitiveness and Competition Policy in the Era of Telecommunication Convergence. 2001. (also translated into Korean in a book)

“From 2G to 3G: Wireless Competition for Internet-Related Services,” presented at Brookings Conference, October 2001, R. Crandall and J. Alleman ed., Broadband, Brookings, 2002.

“Competition and Regulation for Internet-related Services: Results of Asymmetric Regulation”, presented at Columbia Univ. conference, October 2001, R. Crandall and J. Alleman ed., Broadband, Brookings, 2002

“Does Bell Company Entry into Long-Distance Telecommunications Benefit Consumers?,” with G. Leonard and J.G. Sidak, Antitrust Law Journal. 70,2002.

“Do Long-Distance Carriers Price Discriminate Against the Poor and the Less-Educated?,” with J.G. Sidak,, mimeo December 2002

“Estimation of Patent Licensing Value Using a Flexible Demand Specification”, with G. Leonard, mimeo Dec 2002.

#### **JOINT REPORTS, TESTIMONY, AND BOOKS:**

“Project Independence: An Economic Analysis,” Technoloav Review, May 1974.

“The FEA’s Project Independence Report: Testimony before Joint Economic Committee,” U.S. Congress, March 18, 1975.

“The FEA’s Project Independence Report: An Analytical Assessment and Evaluation,” NSF Report, June 1975

“Energy Demand in the ERDA Plan,” with D. Wood, Energy Laboratory Report, August 1975

“A Note on Computational Simplifications and Extensions of the Conditional Probit Model,” EPRI report on choice models, September 1977.

“Labor Supply Response of Males to a Negative Income Tax,” Testimony for U.S. Senate Finance Subcommittee on



Public Assistance, November **22**, 1978.

"Appliance Choice with Time of Day Pricing," Energy Laboratory Report, January 1980.

"Discrete Choice Models with Uncertain Attributes," Oak Ridge National Laboratories Report, January 1980.

"Individual Savings Behavior," with **P. Diamond**, Report to the National Commission on Social Security, May 1980.

"Wealth Accumulation and Retirement," with **P. Diamond**, Report to the Department of Labor, May 1982.

"A Review of IFFS," Report to the Energy Information Agency, February 1982.

"**A** Model of Heating System and Appliance Choice," with **J. Berkovec** and **J. Rust**, Report to the Department of Energy, December 1983.

"Labor Force Behavior of Older Men After Involuntary Job **Loss**," with **L. Paquette**, Report to Department of Health and Human Services, December 1985.

"Pollution and Work Days Lost," with **D. Wise** and **B. Ostrow**, NBER Working Paper, January 1984; Revised 1985.

"Demand for Interstate Long Distance Telephone Service," with **A. Jafee** and **T. Tardiff**, November 1985.

"Competition in the Information Market 1990", August 1990.

"The Welfare Cost to the US Economy of Regulatory Restriction in Telecommunications," January 1995.

"Benefits and Costs of Vertical Integration of Basic and Enhanced Telecommunications Services," April 1995.

"Statement on the Natural Resource Damage Provisions of CERCLA," Testimony before the U.S. Senate Committee on Environment and Public Works, May 11, 1995; Testimony before the U.S. House of Representatives, Transportation & Infrastructure Committee, Water Resources & Environment Subcommittee, July 11, 1995.

"Competition in Cellular Markets," Testimony before the U.S. House of Representatives, Committee on Commerce, October 12, 1995.

"Merger Policy in Declining Demand Industries," Testimony before the U.S. Federal Trade Commission, November 14, 1995.

"Expected Results from Early Auctions of Television Spectrum," Testimony before the U.S. Senate Budget Committee and the U.S. House of Representatives, Committee on Commerce, March **13**, 1996.

The Choice and Utilization of Energy Using Durables, ed. **J. Hausman**, Palo Alto: EPRI, 1981.

Social Experimentation, ed. **J. Hausman** and **D. Wise**, Chicago: 1985.

Future Competition in Telecommunications, ed. **S. Bradley** and **J. Hausman**, Harvard: 1989.

Contingent Valuation: A Critical Appraisal, ed. **J. Hausman**, North Holland, 1993.

Globalization, Technology and Competition, ed. **S. Bradley**, **J. Hausman**, **R. Nolan**, Harvard: 1993.

Economic Impact of Deregulating U.S. Communications Industries, The WEFA Group, Burlington, MA, February 1995.